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Ameritech

Celia Nogales
Director - Federal Relations

June 17, 1996

RECEIVED

JUN 17 1996

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Room 222
Washington, DC 20554

Re: **Ex Parte Statement**
CC Docket 93-162

Dear Mr. Caton:

On June 13, 1996, Dan Fling, Director - Federal Regulatory Planning and Policy, met by conference call with Carol Canteen and Dick Kwiatkowski of the Competitive Pricing Division. The purpose of the discussion was to respond to inquiries regarding Ameritech Transmittal No. 730 and our direct case in the above referenced proceeding. The attached material was used as part of their discussion.

Sincerely,

Celia Nogales

Attachment

cc: Ms. Carol Canteen
Mr. Dick Kwiatkowski

No. of Copies rec'd 0+1
List ABCDE

ACCESS SERVICE

16. Ameritech Interconnection Services (Cont'd)

16.1 Ameritech Central Office Interconnection (Cont'd)

16.1.2 Rules and Regulations (Cont'd)

(A) (Cont'd)

(19) The Telephone Company reserves the right to prohibit all equipment and facilities, other than cable, from its entrance manholes.

(20) Customers may not perform fiber splicing at any point from the manhole (including the manhole) to the Transmission Node. Customers may request the Telephone Company to perform such splicing.

(21) The Telephone Company will designate manhole meetpoints outside each ACOI Central Office specifically for ACOI.

(22) None of the provisions of 16.1 apply or extend to any patron of the Customer purchasing ACOI from the Telephone Company.

(23) The Telephone Company is not liable for any act or omission of the Customer in the furnishing of service to the Customer's patrons.

(24) The Telephone Company will provide two separate points of entry to each ACOI Central Office whenever there are at least two entry points for the Telephone Company's cable to the Central Office.

(25) Customers that choose to provide their own passive bays as described in 16.1.3(K) following are required to build out their signal from their transmission equipment to the Telephone Company equipment line-up. The transmit signal originating at the Telephone Company's equipment line-up, received at the customer's passive bay, will not be an equal level signal test point. N

(26) Customers that choose to provide their own passive bay within their Transmission Node must provide Telephone Company personnel access to the Transmission Node for terminating cable and testing. N

Director, Federal Regulatory, 4F20
2000 W. Ameritech Center Drive
Hoffman Estates, Illinois 60196-1025

ACCESS SERVICE

CANCELED BY
TRANSMITTAL No. 755
DATED 11/29 19 93
EFFECTIVE 1/13 19 94

16. Ameritech Interconnection Services (Cont'd)

16.1 Ameritech Central Office Interconnection (Cont'd)

16.1.3 Rate Categories (Cont'd)

(K) Optional Features and Functions (Cont'd)

(v) DS1 Repeater - This category provides for a DS1 Repeater to be placed between the Customer's Transmission Node and the Telephone Company's equipment line up. When the Customer provides the passive bay, the DS1 Repeater is required to maintain signal levels when the distance between the Customer's transmission equipment and the Telephone Company's equipment line-up exceeds 655 feet. When the Customer purchases DS1 Terminations from the Telephone Company, a DS1 repeater is required to maintain signal levels when the distance between the DS1 Termination (16.1.3(K)(iii)) and the Electrical Cross-Connection Service (16.4, following) exceeds 85 feet. Customers will be notified of the need for repeaters when notified of space availability and associated requirements as described in 16.1.2(A)(1), preceding. The DS1 Repeater charge is a monthly recurring charge and will apply per repeater if distance limitations are exceeded. Exact distance limitations may be affected by mutual design modifications agreed to by the customer and the Telephone Company. N

(vi) DS3 Repeater - This category provides for a DS3 Repeater to be placed between the Customer's Transmission Node and the Telephone Company's equipment line up. When the customer provides the passive bay, the DS3 Repeater is required to maintain signal levels when the distance between the Customer's transmission equipment and the Telephone Company's equipment line-up exceeds 450 feet. When the Customer purchases DS3 Terminations from the Telephone Company, a DS3 repeater is required to maintain signal levels when the distance between the DS3 Termination (16.1.3(K)(iii)) and the Electrical Cross-Connection Service (16.4, following) exceeds 27 feet. Customers will be notified of the need for repeaters when notified of space availability and associated requirements as described in 16.1.2(A)(1), preceding. The DS3 Repeater charge is a monthly recurring charge and will apply per repeater if distance limitations are exceeded. Exact distance limitations may be affected by mutual design modifications agreed to by the Customer and the Telephone Company. N

(TR730)

Director, Federal Regulatory, 4F20
2000 W. Ameritech Center Drive
Hoffman Estates, Illinois 60196-1025

SEP 28 1993

Bellcore
Bell Communications Research

GENERIC REQUIREMENTS
GR-342-CORE
ISSUE 1, DECEMBER 1995

High-Capacity Digital Special Access Service Transmission Parameter Limits and Interface Combinations

4.1.3 Termination

One balanced-twisted pair is used for each direction of transmission. The distribution frame jack connected to a pair bringing signals to the distribution frame from the equipment is an "out-jack." The distribution frame jack connected to a pair carrying signals away from the distribution frame to the equipment is termed the "in-jack." Figure 4-2 shows a schematic diagram for a DSX.

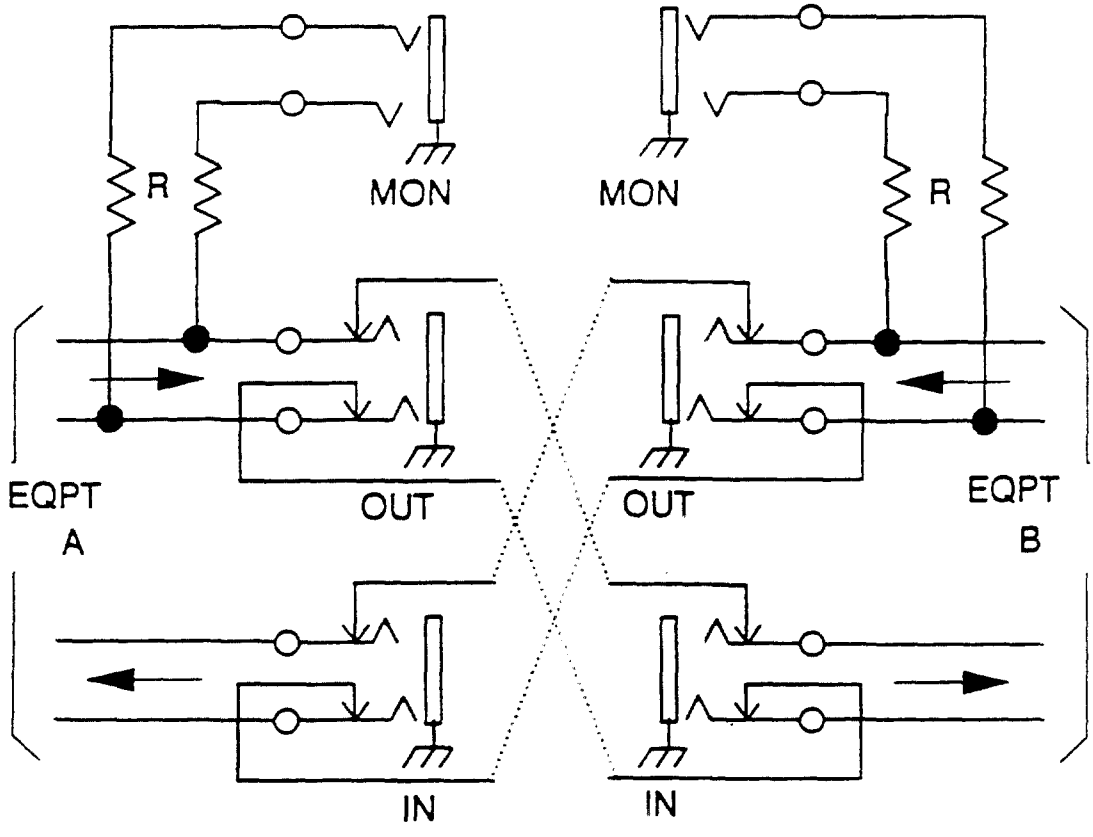

Figure 4-2. Schematic Drawing of Cross-Connect for DSX-1, DSX-1C, and DSX-2

4.1.10 Loss

4.1.10.1 Return Loss

The return loss at the DSX-1 is typically greater than 26 dB at 772 kHz. The measurement is made at the out-jack including the effect of 85 feet of 22 gauge cross-connect or patch cabling to an in-jack that is terminated in 100-Ω (± 5%) tolerance.

4.1.10.2 Insertion Loss

The insertion loss of the DSX-1 is typically less than the loss of 85 feet of 22 gauge cross-connect wire.

4.1.10.3 Crosstalk Loss

The crosstalk loss at the DSX-1 is typically greater than 55 dB at 772 kHz between the out-jack and the in-jack of adjacent signal paths. All other jacks are terminated with 100-Ω (± 5%) tolerance terminations.

4.1.11 Cable Characteristics

Connections to DSX-1 cross connects typically consist of up to 655 feet (200 meters) of 22 AWG cable intended for use in commercial buildings. Figure 4-3 shows examples of insertion loss and phase characteristics of this cable.

4.2 DS1 Frame Format

The LEC signal and the IC signal at the CXR-POT are framed in either the Superframe (SF) or the Extended Superframe (ESF) format. The same framing format is used in both directions of transmission at the POT. A frame is a set of 192 information digit time slots preceded by a 1-digit time slot containing the Frame (F) bit, for a total of 193-digit time slots. The 192 information digit time slots may be partitioned into 24 8-bit time slots (see Figure 4-4).

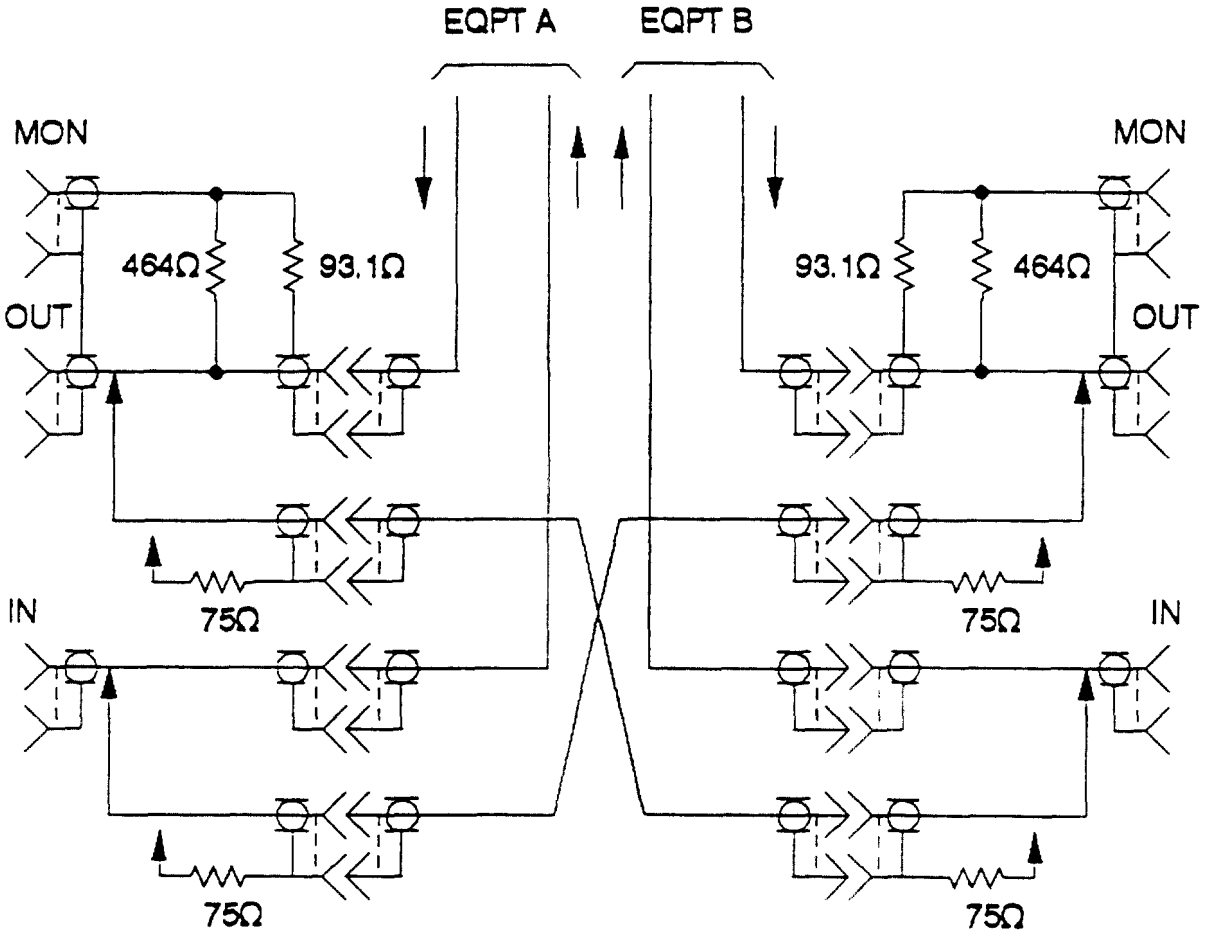

Figure 7-2. Cross-Connect Schematic for DSX-3 and DSX-4NA

7.1.8 Jitter

Jitter is short-term variations of the significant instants of a digital signal and generally applies to variations from their ideal positions in time above the frequency of 10 Hz. The magnitude of jitter is specified in terms of UIs. Output jitter meets the DS3 level specifications given below.

- Band 1 (10 Hz to 400 kHz): 5.0 UI, peak-to-peak
- Band 2 (30 kHz to 400 kHz): 0.1 UI, peak-to-peak.

7.1.9 Loss

7.1.9.1 Return Loss

The return loss of the DSX-3 is typically greater than 20 dB at 22.368 MHz. The measurement is made at the out-jack including the effect of 27 feet of cross-connect or patch cabling (WE Co 728 A cable or equivalent) to an in-jack that is terminated in 75-Ω (±5%) tolerance.

7.1.9.2 Insertion Loss

The insertion loss of the DSX-3 is typically less than 1.15 dB at 22.368 MHz.

7.1.9.3 Crosstalk Loss

The crosstalk loss of the DSX-3 is typically greater than 55 dB at 22.368 MHz between the out-jack and the in-jack of adjacent signal paths. All other jacks are terminated with 75-Ω (±5%) tolerance terminations.

7.1.9.4 Cable Characteristics

Connections between equipment and DSX-3 cross-connects are typically made with 75-Ω coaxial cable up to 450 feet (135 meters). Figure 7-3 shows examples of insertion loss and phase characteristics of this cable.

American National Standard

for Telecommunications –
Digital Hierarchy –
Electrical Interfaces

ANSI American National Standards Institute
11 West 42nd Street
New York, New York
10036

ANSI T1.102-1993

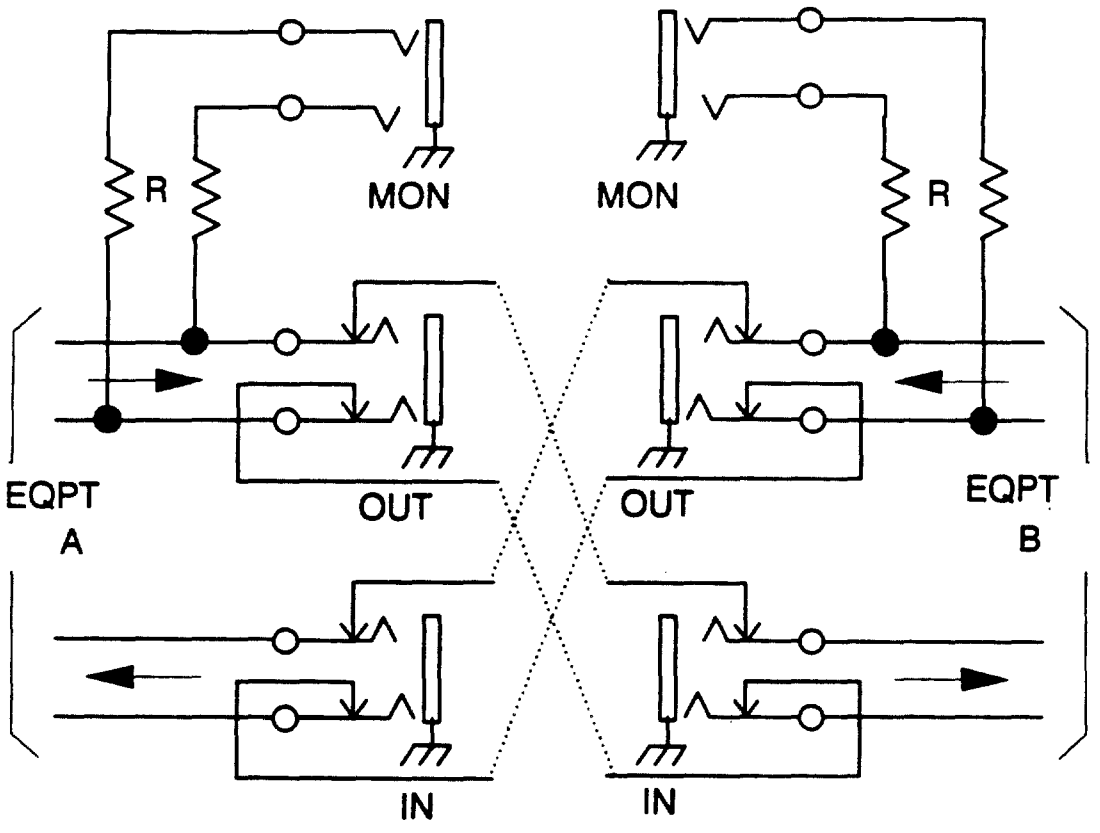

Figure B.1 – Schematic drawing of cross-connects for DSX-1, DSX-1A, DSX-1C, and DSX-2

Annex B
(informative)

Manual DS*N* cross-connect characteristics

B.1 General

The interface specifications in this standard are written so as to not dictate any particular technological approach to providing the interface. This annex describes details of the manual cross-connect frame technology that provides these interface functions in present networks. Implementation of an interface with electronic cross-connect technology would alter a number of these details, particularly in the area of return loss, insertion loss, and crosstalk loss.

The North American cross-connects are designated DSX-*N*, where *N* indicates the level (DS*N*) of the digital network interconnected at that cross-connect. Thus, DS1 equipment is interconnected at the DSX-1 cross-connect, DS1A equipment is interconnected at the DSX-1A cross-connect, and so on. In designating the physical connection to these cross-connects, the distribution frame jack connected to a pair bringing signals to the distribution frame is designated the out-jack. The distribution frame jack connected to a pair carrying signals away from the distribution frame is designated the in-jack. Widespread practice references the Interface to the out-jack appearance on a cross-connect.

The detailed electrical characteristics of typical cables used to connect equipment to and from cross-connects appear in annex C. Maximum cable lengths in use, based on current engineering practice in networks is included for each of the cross-connect implementation descriptions.

B.2 Implementation descriptions

B.2.1 DSX-1

DSX-1 cross-connects can be engineered in a variety of configurations in the network. A simplified schematic diagram for a DSX is shown for reference in figure B.1

Typical electrical parameters associated with the DSX-1 cross-connect include:

- The insertion loss of the DSX-1 is typically less than the loss of 85 feet of 22 gauge cross-connect wire.
- The return loss at the DSX-1 is typically greater than 26 dB at 772 kHz. The measurement is made at the out-jack including the effect of 85 feet of 22 gauge cross-connect or patch cabling to an in-jack which is terminated in 100 ohms ±5% tolerance.
- The crosstalk loss at the DSX-1 is typically greater than 55 dB at 772 kHz between the out-jack and the in-jack of adjacent signal paths. All other jacks are terminated with 100 ohms ±5% tolerance terminations.
- Protected (non-intrusive) monitoring access is provided through a high impedance bridging circuit consisting of 432 ohm ±5% tolerance resistors connected to the tip and ring conductors at the out-jack. This provides a monitor level 19.64 dB ±0.87 dB below the signal power.
- Typical engineering rules constrain cabling to and from equipment to the DSX-1 cross-connect to up to 655 feet of multi-pair 22 AWG office cable with overall outer shield. This cable is also widely known as 22 AWG ABAM.

B.2.2 DSX-1A

DSX-1A cross-connects can be engineered in a variety of configurations in the network. A simplified schematic diagram for a DSX is shown for reference in figure B.1. Typical electrical parameters associated with the DSX-1A cross-connect include:

- The insertion loss of the DSX-1A is typically less than the loss of 85 feet of 22 gauge cross-connect wire.
- The return loss of the DSX-1A is typically greater than 26 dB at 1.024 MHz. The measurement is made at the out-jack including the effect of 85 feet of 22 gauge cross-con-

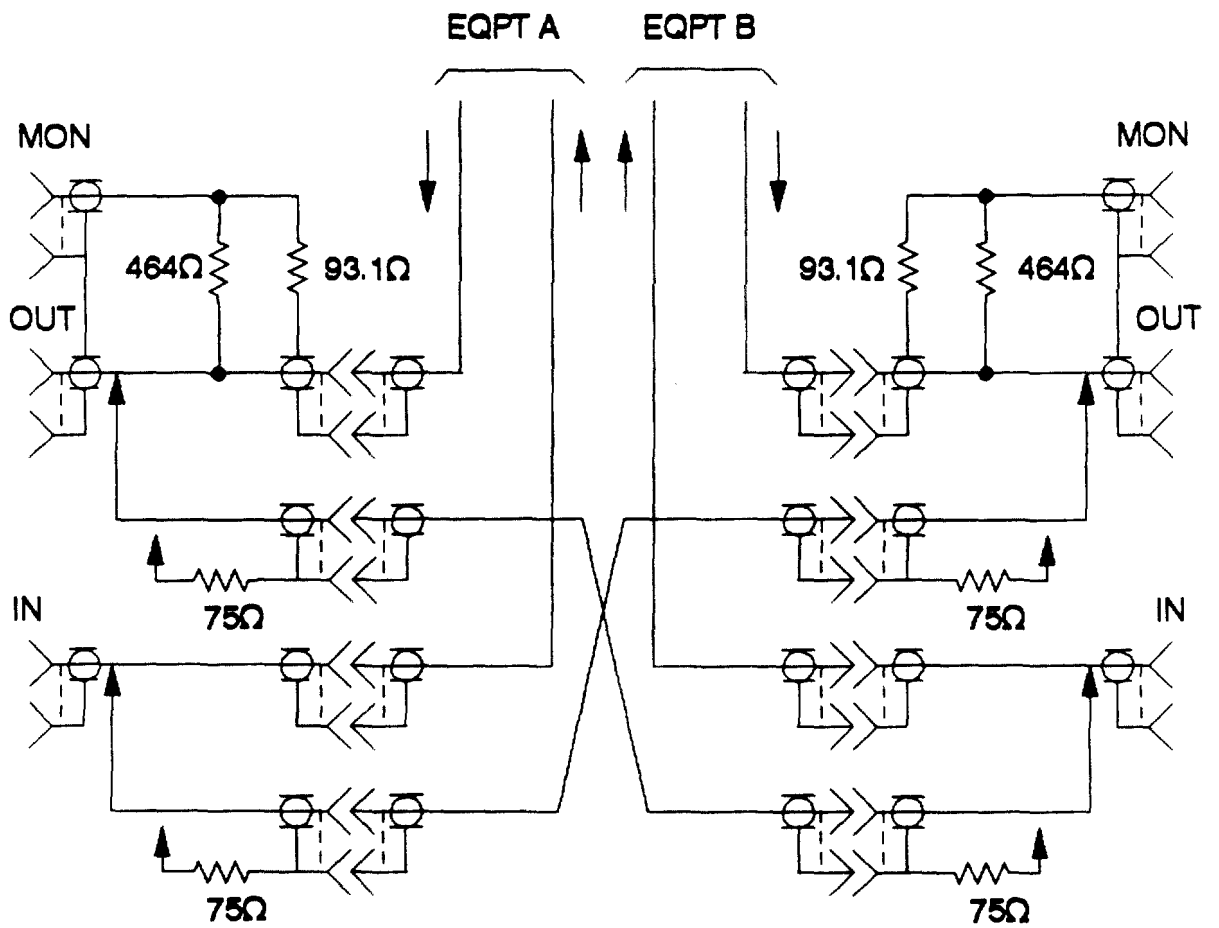

Figure B.2 – Cross-connect schematic for DSX-3 and DSX-4NA

nect or patch cabling to an in-jack which is terminated in 100 ohms ±5% tolerance.

- The crosstalk loss of the DSX-1A is typically greater than 55 dB at 1.024 MHz between the out-jack and the in-jack of adjacent signal paths. All other jacks are terminated with 100 ohms ±5% tolerance terminations.

- Protected (non-intrusive) monitoring access is provided through a high impedance bridging circuit consisting of 432 ohm ±5% tolerance resistors connected to the tip and ring conductors at the out-jack. This provides a monitor level 19.64 dB ±0.87 dB below the signal power.

- Typical engineering rules constrain cabling to and from equipment to the DSX-1A cross-connect to up to 655 feet of multi-pair 22 AWG office cable with overall outer shield. This cable is also widely known as 22 AWG ABAM.

B.2.3 DSX-1C

DSX-1C cross-connects can be engineered in a variety of configurations in the network. A simplified schematic diagram for a DSX is shown for reference in figure B.1. Typical electrical parameters associated with the DSX-1C cross-connect include:

- The insertion loss of the DSX-1C is typically less than the loss of 85 feet of 22 gauge cross-connect wire.

- The return loss of the DSX-1C is typically greater than 26 dB at 1.576 MHz. The measurement is made at the out-jack including the effect of 85 feet of 22 gauge cross-connect or patch cabling to an in-jack which is terminated in 100 ohms ±5% tolerance.

- The crosstalk loss of the DSX-1C is typically greater than 55 dB at 1.576 MHz between the out-jack and the in-jack of adjacent signal paths. All other jacks are terminated with 100 ohms ±5% tolerance terminations.

- Protected (non-intrusive) monitoring access is provided through a high impedance bridging circuit consisting of 432 ohm ±5% tolerance resistors connected to the tip and ring conductors at the out-jack. This provides a monitor level 19.64 dB ±0.87 dB below the signal power.

- Typical engineering rules constrain cabling to and from equipment to the DSX-1C cross-connect to up to 655 feet of multi-pair 22 AWG office cable with overall outer shield. This cable is also widely known as 22 AWG ABAM.

B.2.4 DSX-2

DSX-2 cross-connects can be engineered in a variety of configurations in the network. A simplified schematic diagram for a DSX is shown for reference in figure B.1. Typical electrical parameters associated with the DSX-2 cross-connect include:

- The insertion loss of the DSX-2 is typically less than the loss of 15 feet of individually shielded 22 gauge pairs.

- The return loss of the DSX-2 is typically greater than 26 dB at 3.156 MHz. The measurement is made at the out-jack including the effect of 15 feet of 22 gauge individually shielded twisted pairs to an in-jack which is terminated in 110 ohms ±5% tolerance.

- The crosstalk loss of the DSX-2 is typically greater than 55 dB at 3.156 MHz between the out-jack and the in-jack of adjacent signal paths. All other jacks are terminated with 110 ohms ±5% tolerance terminations

- Protected (non-intrusive) monitoring access is provided through a high impedance bridging circuit consisting of 432 ohm ±5% tolerance resistors connected to the tip and ring conductors at the out-jack. This provides a monitor level 18.9 dB ±0.87 dB below the signal power.

- Typical engineering rules constrain cabling to and from equipment to the DSX-2 cross-connect to up to 1000 feet of multi-pair 22 AWG office cable with overall outer shield. This cable is also widely known as 22 AWG ABAM.

B.2.5 DSX-3

DSX-3 cross-connects can be engineered in a variety of configurations in the network. A simplified schematic diagram for a DSX is shown for reference in figure B.2. Typical

electrical parameters associated with the DSX-3 cross-connect include:

- The insertion loss of the DSX-3 is typically less than 1.15 dB at 22.368 MHz.

- The return loss of the DSX-3 is typically greater than 20 dB at 22.368 MHz. The measurement is made at the out-jack including the effect of 27 feet of cross-connect or patch cabling (WE Co 728 A cable or equivalent) to an in-jack which is terminated in 75 ohms ±5% tolerance.

- The crosstalk loss of the DSX-3 is typically greater than 55 dB at 22.368 MHz between the out-jack and the in-jack of adjacent signal paths. All other jacks are terminated with 75 ohm ±5% tolerance terminations.

- Protected (non-intrusive) monitoring access is provided through a bridging circuit connected to the center conductor and outer shield at the out-jack. This provides a monitor level 21.5 dB ±1.5 dB below the signal power.

- Typical engineering rules constrain cabling to and from equipment to the DSX-3 cross-connect to up to 450 feet of 75 ohm coaxial cable with tinned copper shield (WE Co 728 A cable or equivalent).

B.2.6 DSX-4NA

A simplified schematic diagram for a DSX is shown for reference in figure B.2. Typical electrical parameters associated with the DSX-4NA cross-connect include:

- The insertion loss of the DSX-4NA is typically less than 2.0 dB.

- The return loss of the DSX-4NA is typically greater than 20 dB at from 7 MHz to 280 MHz.

- The crosstalk loss of the DSX-4NA is typically greater than 50 dB from 7 MHz to 280 MHz between the out-jack and the in-jack of adjacent signal paths. All other jacks are terminated with 75 ohm ±5% tolerance terminations.

- Protected (non-intrusive) monitoring access is provided through a bridging circuit connected to the center conductor and outer shield at the out-jack. This provides a monitor level 21 5 dB ±1.5 dB below the signal power.

- Typical engineering rules constrain cabling to and from equipment to the DSX-4NA cross-connect to up to 225 feet of 75 ohm coaxial cable with tinned copper shield (WE Co 728 A cable or equivalent).

B.2.7 STSX-1

Characteristics to be determined.

B.2.8 STSX-3

Characteristics to be determined.